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Customer No.: 31561
Application No.: 10/709,036
Docket No.: 12468-US-PA

AMENDMENTS

In The Claims

1. (currently amended) A laser annealing apparatus, ~~adapted-used~~ to perform a laser annealing process for annealing an amorphous silicon thin film, comprising:

a laser-generating module, ~~adapted-used~~ to provide a laser beam to ~~recrystallize-anneal~~ the amorphous silicon thin film to form a polysilicon thin film;

a resistance-measurement module, ~~adapted-used~~ to measure a sheet resistance of the polysilicon thin film for obtaining a sheet resistance value; and

a host circuit module, electrically coupled to and between the laser-generating module and the resistance-measurement module, the host circuit module, according to the sheet resistance value, outputting a feedback signal to the laser-generating module, for optimizing an energy density of the laser beam.

2. (currently amended) The laser annealing apparatus of claim 1, further comprising a supporting module, wherein the supporting module is moveably located between the laser-generating module and the resistance-measurement module, ~~adapted-used~~ to support the amorphous silicon thin film, and electrically coupled to the host circuit module.

3. (original) The laser annealing apparatus of claim 1, wherein the laser-generating module comprises:

a laser beam source; and

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a control circuit, electrically coupled to and between the laser beam source and the host circuit module.

4. (original) The laser annealing apparatus of claim 3, wherein the laser beam source comprises an excimer laser.

5. (original) The laser annealing apparatus of claim 1, wherein the resistance-measurement module comprises:

a measurement terminal; and

an output circuit, electrically coupled to and between the measurement terminal and the host circuit module.

6. (original) The laser annealing apparatus of claim 5, wherein the measurement terminal comprises a probe set.

7. (currently amended) The laser annealing apparatus of claim 1, wherein the host circuit module is installed in a database, and the host circuit module is ~~adopted-used~~ to compare the sheet resistance with a plurality of referential resistance values stored in the database for generating the feedback signal.

8. (currently amended) A laser annealing process, comprising:

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(a) providing a laser beam to ~~recrystallize-anneal~~ one of a plurality of amorphous silicon thin films to form a polysilicon thin film;

(b) measuring a sheet resistance of the polysilicon thin film for obtaining a sheet resistance value;

(c) comparing the sheet resistance value and a plurality of referential resistance values;
and

(d) optimizing an energy density of the laser beam according to the comparison of the sheet resistance value and the referential resistance values.

9. (currently amended) The laser annealing process of claim 8, after the step (d), further comprising:

(e) providing the optimized laser beam to ~~recrystallize-anneal~~ another one of the amorphous silicon thin films to form another polysilicon thin film.

10. (original) The laser annealing process of claim 9, after the step (e), further comprising repeating the steps (b) to (e) several times.

11. (currently amended) The laser annealing process of claim 8, before the step (a), further comprising:

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(f) individually providing the laser beam with different energy densities to a plurality of amorphous silicon thin film samples so as to ~~recrystallize~~ anneal each amorphous silicon thin film sample to form a polysilicon thin film sample; and

(g) measuring sheet resistances of the polysilicon thin film samples, serving as the referential resistance values.